

Lesson 3-2

Variables and Expressions

Lesson Objective To evaluate algebraic expressions	NAEP 2005 Strand: Algebra Topic: Variables, Expressions, and Operations Local Standards: _____
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Vocabulary

A numerical expression is _____

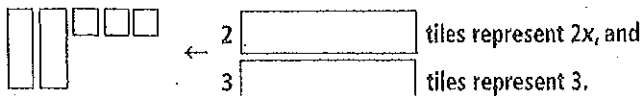
A variable is _____

An algebraic expression is a _____

To evaluate an algebraic expression is to _____

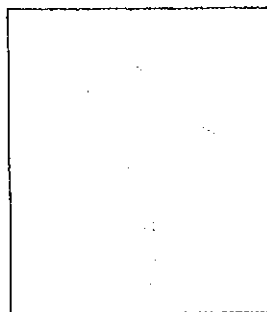
Example

Modeling with Algebra Tiles Model the expression $2x + 3$ with algebra tiles.



Quick Check

1. Draw algebra tiles to model the expression $x + 2$.



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Examples

- ② **Evaluating an Algebraic Expression** Evaluate $8x + 2$ for $x = 3$.

$$\begin{aligned} 8x + 2 &= 8(\boxed{}) + 2 \leftarrow \text{Replace } x \text{ with } \boxed{}. \\ &= \boxed{} + 2 \leftarrow \text{Multiply 8 and 3.} \\ &= \boxed{} \leftarrow \text{Add 24 and 2.} \end{aligned}$$

- ③ **Canoe Rental** The cost to rent a canoe at the lake is a \$6 basic fee plus \$4 for each hour h the canoe is rented. The expression for the total cost of a canoe rental is $6 + 4h$. Complete the table for the given number of hours.

Hours	Total Cost	Substitute each number of hours for h .
h	$6 + 4h$	
1	<input type="text"/>	$\leftarrow 6 + 4 \times \boxed{}$
2	<input type="text"/>	$\leftarrow 6 + 4 \times \boxed{}$
3	<input type="text"/>	$\leftarrow 6 + 4 \times \boxed{}$

Quick Check

2. Evaluate each expression for $x = 7$.

a. $3x + 15$

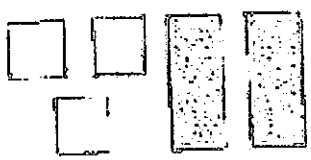
b. $5x \div 7$

c. $56 - 4x$

3. In Example 3, how much will it cost to rent a canoe for 6 hours?

Homework Exercises

Assignment _____ Date _____

Show Your Work!	Corrections/Comments/Explanations
<p>(1) Write a variable expression for this model:</p> <div></div>	
<p>(2) Evaluate each expression:</p> <p>a) $v + 16$ for $v = 9$</p> <p>b) $3m$ for $m = 9$</p> <p>$3pq$ for $p = 3$ and $q = 5$</p>	
<p>(3) Evaluate each expression:</p> <p>a) $2t - 8$ for $t = 21$</p> <p>b) $2(4e)$ for $4 = 5$</p> <p>c) $9r + 16$ for $r = 8$</p>	